

UPSC IAS MAINS

GENERAL STUDIES PAPER 1

SOLVED PAPER 2020

1. The rock-cut architecture represents one of the most important sources of our knowledge of early Indian art and history. Discuss. (Answer in 150 words)

10

Ans. The practice of creating a structure by carving it out of a natural rock is known as Rock-cut architecture. In this, the unwanted rock material is removed out of structure to give it a desired shape.

Source of Knowledge of Early Indian Art

- **Prehistoric Rock Art** The walls of many caves of this time are full of finely carved and painted pictures of animals which the cave-dwellers hunted. E.g. Bhimbetka caves.
- **Mauryan Phase** During the Mauryan Phase, the rock cut caves were used as Viharas which are residential quarters for the Jaina and Buddhist Monks. Rock cut Pillars depicts prevalence of high degree of skills in form of Lion, Elephant figures. Sculptures of this period shows the figures of Yaksha and Yakshinis. E.g. rock-cut architecture in the Barabar and Nagarjuni hills, Lion Capital of Ashoka etc.
- **Post Mauryan Phase** The rock cut caves of post Mauryan phase consists of Viharas and Chaityas (rectangular prayer halls) for the monks. These caves consists of figures of animals such as Elephants, images of Buddha, pillars and intricate carvings. E.g. Karle Caves in Maharashtra.
- **Temple Architecture** The temple architecture consists of wall decorations and work of Art. The images of Hindu Gods and Goddesses have been intricately carved from rock in these temples. E.g. Bhaja Caves, Karla Caves, the Kanheri Caves, monolithic Kailash Temple etc.

Source of Indian History

- **Life of the Mesolithic Age** The painting in the caves of Bhimbetka shows the hunting scenes which represents the socio-economic life of the Mesolithic age.
- **Court Art of Ashoka** The white- grey sandstone columns erected by Ashoka all over his Empire to mark the site associated with Buddha's life or for propagating the message of Dhamma to his people.

- **Gupta Period** During this period Hindu temples were constructed by the Kings. The images of Lord Vishnu and his incarnations have been found in many caves. E.g. Varaha incarnation in Udaygiri Caves.
- **Monolithic Rock-Cut Temples** The architects of the Pallava Dynasty initiated rock carving to create monolithic structures that resemble temples. E.g. the Pancha Rathas or Pandava Rathas of Mahabalipuram.
- **Religious Life** The first phase of excavations in Western India was related exclusively to early Buddhism, which meant the worship of the Buddha, represented symbolically. The depiction of jataka stories through painting can be found at Ellora and Ajanta cave.
- **Economic Life** Relics found in these caves suggest a connection between the religious and the commercial life. Buddhist missionaries are known to have accompanied traders on the busy international trading routes through India.

Thus, rock-cut architecture has been a source of ancient art and history. These ancient and medieval structures represent significant achievements of structural engineering and craftsmanship.

2. Pala period is the most significant phase in the history of Buddhism in India. Enumerate. (Answer in 150 words)

10

Ans. Eastern India had become the last refuge of the decaying Buddhism in India during the Pala reign (750-1175 AD). Most of the Pala kings were Mahayana Buddhists and their official seals bear the symbol of Dharmachakra.

Significance of Pala Period in Buddhism

- **Changes in Mahayana Buddhism** The Pala period witnessed drastic changes in the cult of Mahayana Buddhism. Occult doctrines, miracles, tantra and mantra had overshadowed logic and rationalistic ideas.
- **Establishment of Monasteries** Pala ruler Gopala was a staunch Buddhist, who had built the famous monastery at Odantapuri.

Dharmapala established the Vikramashila monastery and the Somapura Mahavihara.

Devapala was also a patron of the Nalanda monastery.

- **Evolution of Tantric Buddhism** The Tantric revolution gained popular and royal support and eventually made its way into the curriculum of monastic universities.
- **Renovation of Buddhist Monuments** Mahipala is said to have built and renovated the Buddhist monuments of Sarnath, Bodhgaya, Varanasi and Nalanda.
- **Translation of Buddhist Scriptures** During the Palas, the monasteries of Bengal and Bihar were intellectually superior in the Buddhist world. Buddhist ascetics and others came from Tibet, Kashmir and elsewhere to India and composed many works, copied and translated Buddhist scriptures at these monasteries.
- **Demise of Buddhism in India** With the collapse of the Pala dynasty in the 12th century, Buddhism had no social base and the religious practices were confined within the Sanghas and not in common households.
- **Loss of Patronage** Huge monastic establishments like Nalanda, Vikramashila were dependent on endowments from kings, merchants and rich people. When this patronage was no more, these establishments ceased to exist. Buddhist monks gradually mingled with general masses and lost their identity.

Buddhism during the Pala Age had undergone massive transformation but the form of Buddhism prevalent in the Pala period was not an original one, rather it was an assimilation of the Brahmanical cult with the original form of Buddhism.

3. Evaluate the policies of Lord Curzon and their long term implications on the national movements. (Answer in 150 words) 10

Ans. Lord Curzon was India's Viceroy between 1899 and 1905. He was one of the most controversial and consequential holders of that post.

Curzon carried out reforms in several fields of administration with primary motives of centralising the administration and safeguarding the British empire in India though some of these measures benefited Indians as well.

Policies of Lord Curzon

- **Calcutta Corporation Act, 1899** Curzon passed the Act in 1899 to reduce the number of elected members in the Corporation and virtually made it a government department.
- **Education Policies** In 1901, Curzon called an Education Conference at Simla. After the Conference, a University Commission under the Chairmanship of Thomas Raleigh was appointed in 1902.

- **Indian Universities Act, 1904** On the recommendation of a University Commission under Thomas Raleigh, Curzon passed the Indian Universities Act, it brought Universities under the supervision of the government.
- **Monument Act, 1904** Curzon established an archaeological department for the protection of historical monuments.
- **Agriculture Reforms** He established an Imperial Agriculture Department under an Inspector-General. An Agriculture Research Institute was established at Pusa, Bihar in Bengal Presidency.
- **Partition of Bengal** In 1905, the province of Bengal, Bihar and Orissa was divided into two parts which was protested by the Indians and led to the Swadeshi movement under the guidance of SN Banerjee.

Impact of Curzon's Policies

- **Rise of National Sentiments** The partition of Bengal on communal lines into East and West Bengal fuelled national sentiments in the country and gave rise to the Extremist Nationalists. The extremists focused upon attaining swaraj or self-independence rather than minor concessions from the British Indian Government. The step taken by Curzon triggered the first mass movement and beginning of modern politics.
- **Broadening Base of National Movement** The emergence of Extremist group led to increased participation from the lower and middle classes which was earlier confined to the Upper class and professionals. Later, groups such students, women and workers also participated in the National Movement.
- **Emergence of New Forms of Protest** The extremist group believed in extra constitutional forms of protests that included boycotts, picketing, burning foreign clothes, strikes etc.
- **Establishment of Indian Universities** The boycott of foreign universities led to the establishment of Indian educational institutes. These universities later became the political centers for opposing the oppressive British rule in the country.
- **Rise of New Leaders** The debate over the Swadeshi Movement led to split between moderates and extremists.

Curzon's reactionary policies stirred the Indian consciousness and provided impetus to the Indian nationalism which led to the emergence of leaders like Lokmanya Tilak and Mahatma Gandhi.

Curzon was a determined and industrious man. He, therefore, carried out a large number of reform measures. His racial attitude for Indians and intolerant behaviour towards Indian political aspirations shows that he failed to understand the genuine problems and sentiments of the Indian people.

4. Discuss the geophysical characteristics of Circum- Pacific Zone. (Answer in 150 words) 10

Ans. The Circum-Pacific Zone is also referred to as the Ring of Fire. It is a 400,000 km horse-shoe-shaped chain of volcanoes extending from the Southern tip of South America along the West coast of North America, East coast of Asian landmass, Japan Archipelago and Southern New Zealand. This zone is characterised by frequent occurrence of Volcanic eruptions and High intensity earthquakes.

Characteristics of Circum- Pacific Zone

- **Zone of Convergent Plate Boundary** The Ring of Fire is formed due to subduction of denser oceanic tectonic plate margins beneath the lighter continental plate margins. The subduction and subsequent melting and destruction of the denser oceanic plate margin gives rise to lava and magma beneath the Earth's surface.
- **Volcanic Region** Almost 80% of World's volcanic eruptions take place in this region. The region is home to over 450 volcanoes, including three of the world's four most active volcanoes. E.g. Mount St Helens in the USA, and Mount Fuji in Japan.
- **Deep Focus Earthquakes** The region is the world's most active seismic region due to the seismic energy accumulated deep inside the subducting plate margins. The zone of accumulation of Earthquakes is also described as Benioff Zone. Almost 80% of Earthquakes of the World and 70% of high intensity Earthquakes occur in the Circum-Pacific region.
- **Oceanic Trenches** The Circum-Pacific zone is also characterised by the presence of deep oceanic trenches that run parallel to the Volcanic Island Arcs. These trenches are formed due to convergence, collision and subduction of the denser oceanic plates below the lighter continental plates. E.g. Aleutian Trench, Mariana Trench, Japan Trench etc.
- **Zone of Faults and Sea Floor Spreading** In some regions of Ring of Fire, there are occurrence of Faults and zones of Sea floor spreading. The faults are characterised by earthquakes whereas the zones of Sea floor spreading are characterised by volcanic activity, E.g. San Andreas Fault, East Pacific Rise etc.

The Ring of Fire is an important region for studying the geological and physical aspects of the movements and processes forming the landforms on Earth's surface.

5. The process of desertification does not have climate boundaries. Justify with examples. (Answer in 150 words) 10

Ans. Desertification is land degradation in arid, semi-arid and dry sub-humid areas, collectively known as drylands, resulting from many factors, including human activities and climatic variations.

The range and intensity of desertification has increased in some dryland areas over the past several decades

mainly on account of intensive Human Activities. It can be said that the process of desertification has defied natural climatic boundaries as Human activities are the major cause of land degradation and subsequent desertification.

Expansion of Desert due to Man Made Activities

- The process of desertification in the initial stages begins from the temporary decline in soil quality. Continuous and intense human activities such as over grazing, intensive agriculture, use of harmful chemical fertilisers lead to a permanent decline in quality of soil, vegetation, water resources or wildlife.

It leads to the deterioration of the economic productivity of the land due to overexploitation of land resources by the human beings for fulfilling the needs and aspirations of an ever rising population.

- Ecosystems in semiarid and arid regions around the world appear to be undergoing processes of desertification.

Human-caused land degradation in areas with low or variable rainfall known as drylands, makes them vulnerable to desertification. These drylands account for more than 40 per cent of the world's terrestrial surface area.

- According to the United Nations Environmental Program (UNEP), all regions in which the ratio of total annual precipitation to potential evapotranspiration (PET) ranges from 0.05 to 0.65 should be considered vulnerable to desertification. Such regions constitute parts of Northern Africa, South-Western Africa, South-Western Asia, Central Asia, North-Western India and Pakistan, South-Western USA and Mexico, Western South America and much of Australia. These areas are home to an estimated one-sixth of the world's population.
- The direct causes of desertification are mainly driven by Human activities. These include factors such as deforestation, overgrazing of livestock, intensive cultivation of crops and indiscriminate use irrigation water. Other factors include natural fluctuations in climate and global warming as a result of human-caused greenhouse gas emissions.

Examples of Expansion of Desert

- India faces a growing crisis of land degradation. Nearly 30% of its land area, as much as the area of Rajasthan, Madhya Pradesh and Maharashtra put together, has been degraded through deforestation, over-cultivation, soil erosion and depletion of wetlands.
- The report by Central Arid Zone Research Institute has mentioned that the Thar desert region is spreading eastward.
- The Sahara's southward advance is result of the falling water level of a water basin in the tropical area of Sahel.

- The ISRO in 2016, revealed that Gujarat, Rajasthan and Delhi were among states/UT where more than 50% of the total area was degraded land and those under the threat of desertification.

Thus, it is justified through the above causes and example of desertification that this process does not have climatic boundaries.

6. How will the melting of Himalayan glaciers have a far-reaching impact on the water resources of India? (Answer in 150 words) 10

Ans. The Himalayas are sometimes called the world's third pole because they are covered with thousands of glaciers. Water from those glaciers helps feed some of the world's most important rivers, including the Ganges and the Indus.

Climate change has a strong influence on the precipitation over the Himalayas as well as melting response of glaciers or snow cover in Himalayas.

Importance of Glaciers

- Himalayan glaciers affect the runoff pattern of rivers draining from the glaciated catchments of Himalayas.
- Three major river catchments along with their several tributaries originating from Indian as well as Nepal region of Himalayas receive a significant amount of water from the Himalayan cryosphere, especially during the non-rainfall lean period of the year.

Impact of Melting Glaciers

- Melting of glaciers will cause a significant loss of fresh water resources in the low land valley regions dependent on perennial Rivers. Perennial rivers such as Indus, Yamuna, Ganga, Brahmaputra, are directly fed by the glaciers located in Himalayan region.
- The rapid melting of ice high up in the Himalayas might also cause river swelling and floods in the low lying valley region.
- As surface and ground water resources are interconnected and interdependent due to the water cycle, any loss of surface water will put a severe stress on the ground water resources.
- The groundwater resources which are already under severe stress on account of over exploitation in the Green Revolution areas of Punjab and Haryana will get further depleted.
- The Himalayan rivers support the life and livelihood of more than 500 million people living downstream in Indo-Gangetic plains. It also supports several industries located in these plains.
- The life and livelihood of these people dependent on the water resources will be severely impacted due to loss of water resources.
- Himalayan rivers are also responsible for ensuring the energy security of the country, due to their role in supporting the production of both hydro as well as

thermal electricity through dams/ power plants located in the Indo-Gangetic plains. It is estimated that almost 1/3rd of the country's electricity production capacity is located in these plains, and any variability in the flow pattern of Himalayan rivers can have far-reaching consequences for the energy security of the country.

7. Account for the present location of iron and steel industries away from the source of raw material, by giving examples. (Answer in 150 words) 10

Ans. The development of the iron and steel industry opened the doors to rapid industrial development in India. Almost all sectors of the Indian industry depend heavily on the iron and steel industry for their basic infrastructure. The location of industries is influenced by several factors like access to raw materials, power, market, capital, transport and labour, etc. Relative significance of these factors varies with time and place.

Iron and Steel Industries in India

- Iron and steel Industry is a weight losing industry as it uses iron ore and coking coal, limestone, dolomite, etc. which are weight losing raw materials.
- Therefore, an optimum location for iron and steel industries should be near raw material sources. This is why most of the iron and steel industries are located either near coalfields (Bokaro, Durgapur, etc.) or near sources of iron ore (Bhadrawati, Bhilai and Rourkela).

Factors Responsible for Shift of Iron and Steel Industry away from Source of Raw Materials

There has been a shift of Iron and Steel Industry away from the source of raw material due to following factors :

- **Industries in the Coastal Region** The iron and steel industry started shifting towards the coastal regions due to availability of cheaper imported iron and coal. The coastal industries depended on imported iron or coal which lowered the cost of obtaining the raw material. The location of industries in the coastal regions also facilitated the export of finished products to International markets. E.g. Steel plants at Visakhapatnam, Ratnagiri.
- **Transportation** Iron ore and coal producing regions have a bi-directional relationship. Due to improvement in transport and communication services and declining cost of transportation, the iron and steel industry could be located away from the source of raw material. These plants are usually located close to markets around urban areas.
- **Modern Technological Advancements** Modern technological advancements such as electric smelters, open hearth systems have aided in modern

steel plants being located away from the source of Raw materials. These plants make use of available scrap material which also reduces their energy requirements. E.g. Jindal Iron and Steel Industry, Ghaziabad.

8. Has caste lost its relevance in understanding the multi-cultural Indian society? Elaborate your answer with illustrations. (Answer in 150 words) **10**

Ans. India's caste system is among the world's oldest forms of surviving social stratification.

The system divides the Hindu community into rigid vertical hierarchical groups. It is generally accepted to be more than 3,000 years old.

In 1950 discrimination on the basis of caste, especially any practice of untouchability, was outlawed by the Indian Constitution.

With growing industrialisation, urbanisation, globalisation, emergence of new occupations, maintaining caste based identity in a multi-cultural society is difficult. But, the caste system, a seemingly archaic idea continues to be woven throughout Indian tradition. It has occupied new forms in the multi-cultural social order of India.

Forms of Caste in Modern Society

- **Caste as Source of Self-esteem** Caste, even in the modern society, acts as a source of self-esteem, satisfaction and contentment.
- **Politics** In modern India caste has manifested itself in form of Political parties based on caste identities. Specific caste based groups assert their rights and participate in governance with the help of these political groups.
- **Caste based Domination** Some castes are politically and economically more influential as compared to other castes. This has further created inequalities among the influential castes and the relatively backward castes.
- **Inequality in Labour Markets** Market-led development both weakens and reproduces caste inequalities. In India caste-based discrimination has been a feature of Indian labour markets and business economy.
- **Social Manifestations** Due to industrialisation and globalisation, manifestation of caste based identity has reduced to a certain extent but new forms of social discriminations have emerged on the basis of caste. E.g. separate graveyards on the basis of caste in religions such as Christianity and Islam.

The caste system has also spilled over into other religions in India, with Christians, Muslims, Sikhs and Jains all employing similar forms of social stratification. Adjacent to India's diversity, we can find the persistent existence of caste at every corner of the nation. Keeping all the religions, ethnicities, cultures, and traditions alive, India has also held on to the age-old introduced caste system under the covers of development and progress.

9. COVID-19 pandemic accelerated class inequalities and poverty in India. Comment. (Answer in 150 words)

10

Ans. Pandemics expose the weaknesses in every society and widening and persistent inequality was a feature of almost every country, even before COVID-19 broke out.

Developing countries like India are the most vulnerable. It mostly relies on the informal economy. The most vulnerable section were women, children and those living with disabilities, refugees, and the displaced.

Factors behind Rising Inequalities and Poverty due to COVID-19 Pandemic

- **Strengthening of Prevailing Inequalities** In the last two decades, inequality in India has grown. Oxfam's 2019 "Time to Care" report found that the richest 1 per cent of Indians held more than four times the wealth held by the bottom 70 per cent of the country – that is, four times the wealth of 953 million people. These inequalities were further strengthened on account of the nature of jobs that the lower and upper classes are engaged in.
- **Livelihood Loss During Covid** After COVID-19 lockdown the International Labour Organisation (ILO) estimated that nearly 400 million workers in India's informal economy are at risk of falling deeper into poverty. According to the Centre for Monitoring Indian Economy, over a Million of salaried people lost their jobs since April, 2020. The pandemic had particularly adverse effects on economically vulnerable people, including younger workers and women.
- **Inequalities in Learning** Due to the closure of educational institutions and the divides in distance learning, only a fraction of children were able to access resources for their education and learning. The Annual Status of Education Report (ASER) revealed that only one-third of India's school children are accessing online education—the only means available to students with schools shut down due to COVID-19.
- **Inequalities against Women** Women were particularly exposed to vulnerabilities during the health crisis. Women make up the bulk of the first healthcare responders and they were called upon to respond to the Pandemic with a very short period of time and limited resources.

Women working from home had even greater burden of housework and childcare. Mounting evidence also suggested surge in domestic violence worldwide as a result of strict lockdowns.

The lockdown primarily protected the rich because they could afford to stay home. The poor couldn't bear the brunt of the disease.

The Government took various steps in this regard to nullify the impact of pandemic on the vulnerable population. But still a lot need to be done to pull the vulnerable people back to normality, provide decent living conditions and livelihoods to those who lost their jobs and drifted into poverty.

10. Do you agree that regionalism in India appears to be a consequence of rising cultural assertiveness? Argue. (Answer in 150 words) **10**

Ans. Regionalism is a consciousness of and loyalty to a distinct region with a homogeneous population. It is the development of a political or social system based on one or more such areas.

Regionalism in India

- Regionalism in India is a multidimensional phenomenon as it is a complex amalgam of geographical, historical, cultural, economic, politico-administrative and psyche factors.
- Some of the most important causes of regionalism in India are as follows:
 - Geographical factors
 - Historical and cultural factors
 - Caste and region
 - Economic factors
 - Political administrative factors.

Regionalism and Cultural Assertiveness

- In the Indian scenario the cultural factors may be considered the one of the most important components of the phenomenon of regionalism. These factors promote feelings of regionalism by way of cultural heritage, and historical traditions. People of a particular cultural group also derive inspirations from the noble deeds and glorious achievements of the local heroes. E.g. the formation of Jharkhand in 2000.
- There are also certain political and economic realities which are covered under the gamut of historical and cultural factors. This is mainly due to the fact that history, culture and economy of regions are significantly interlinked with each other.
- Language is one of the most important parts of any culture. It is the way by which people communicate with one another, build relationships, and create a sense of community. It integrates people and creates emotional attachments that leads to the growth of regionalism. The demand of formation of linguistic states was put up due to an assertive linguistic identity. In the past the formation of states like Gujarat, Andhra Pradesh, Haryana and Himachal Pradesh has been on linguistic basis.
- Intra state regionalism also develops due to assertiveness of cultural identity and a struggle for self-determination. Though sometimes it militates against the collective interest of the state as well as the nation but it becomes necessary for certain

groups to assert their identity to remain relevant. E.g. there are demands to form separate states like Purvanchal, Harit Pradesh, Bundelkhand, Saurashtra and Gorkhaland from the existing boundaries of the states of India.

- Though cultural assertiveness leads to the promotion of regionalism but factors such as geography, ethnicity, politics, caste, economic factors etc also play an important role in the formation of regional identities.

Therefore, it is agreed that cultural factors can be considered as a prominent factor that act as a binding force in determining the collective consciousness of the community.

11. Indian philosophy and tradition played a significant role in conceiving and shaping the monuments and their art in India. Discuss. (Answer in 250 words) **15**

Ans. The Indian artworks are influenced by different religions and cultures. Paintings, architecture, folk dance and other art forms are also influenced by the culture and religion.

The architectural designs reveal that the structures have been influenced by cross-culture of different Indian philosophies like Buddhism, Jainism, Shaivism, Vaishnavism etc.

Influence of Different Philosophies and Traditions

- **Rock cut Architecture** Indian rock-cut architecture is mostly religious in nature. Construction of stupas and viharas as part of monastic establishments became part of the Buddhist tradition. After the Buddhists initiated rock-cut caves, Hindus and Jains started to imitate them at Badami, Aihole and Ellora. Although the most glorious art of these Indian empires was mostly Buddhist in nature, subsequently Hindu Empires like the Pallava, Chola, Hoysala and Vijayanagara Empires developed their own styles of Hindu art as well.
- **Temple Architecture** The architectural principles of Hindu temples in India are described in Shilpa Shastras and Vastu Shastras. The temple is dedicated to different sects like Shaivite, Vaishnavite, Shakti cult etc. The architecture varies from region to region. In the North it is called Nagara style, in South it is called Dravidian style. The amalgamation of both is called Vesara style which is found mostly in the central part of India.
- **Paintings** The oldest surviving frescoes of the historical period have been preserved in the Ajanta Caves. The most significant frescoes of the ancient and early medieval period are found in the Ajanta, Bagh and Ellora. Those that survive are initially illustrations for Buddhist texts, later followed by Jain and Hindu traditions.

Mughal painting has developed from the combined influence of the existing miniature tradition and artists trained in the Persian miniature tradition imported by the Mughal Emperor's court.

- **Alvars and Nayanars** Some of the earliest Bhakti movements were led by the Alvars and Nayanars. They travelled from place to place singing hymns in Tamil in praise of their gods.

The temples developed as centres of pilgrimage.

Singing compositions of these poet-saints became part of temple rituals in these shrines, as did worship of the saints' images

- **Sufi Tradition** Most of the musical genres in India are in some way related to rituals, religion, and devotion.

Sufi music is a form of devotional music which is inspired by the works of Sufi poets.

Though Qawwali is the most popular form of Sufi music, there are numerous musical traditions that are connected to the practice of Sufism.

- **Bhakti Traditions** Bhajan, kirtan, hymns, and sung verses exist in each part of the country though there are specific regional traditions, like the Bauls of Bengal and Sopanam Sangeetam of Kerala.

There are the saint poets such as Tulsidas, Surdas, Kabir and Mira who are celebrated in many parts of India. The Vaishnav traditions, the Bhakti, and the Sufi traditions are also known for music as a means of devotional practice.

Thus, the art form in India is largely influenced by the various India philosophies and traditions. It shows the skill of the artisan and the diversity of culture. The diversity is because of the different religious philosophies professed by the ruler.

12. Persian literary sources of medieval India reflect the spirit of the age. Comment. (Answer in 250 words)

15

Ans. The literary sources of the medieval period provide a reliable information and insight about the life of the people of the period.

These sources inform us of the administrative set up of the rulers, their theory of kingship, military achievements etc. They also reflect the state of cultural, economic, political and religious institutions.

Persian Literature during Delhi Sultanate

- **Hasan Nizami** In his work *Taj-ul-Ma'asir* Nizami deals primarily with the history of Qutbuddin-Aibek. He migrated to Delhi and joined service under Qutbuddin. His work deals with the invasion of Muhammad-Ghori as well as the military exploits of Qutbuddin Aibek. The work is mainly in Arabic as well as in Persian. It deals with the beginning of Muslim rule.

- **Alberuni** He has described Mehmood's invasion of India and his influence in his most important treatise '*Tareekh-ul-Hind*'. He described Hindu religion, literature and science. Thus, this book gives information about Mahmood's attacks and the social status during that period.

- **Amir Khusrau** He was an Indian scholar. He adorned the courts of all the Sultans from Balban to Ghiasuddin Tughlaq as the poet laureate. Also, he was more popularly known as Tuti-e-Hind (The Parrot of India). One of his famous work is *Tarikh-i-Ilahi*. It describes the achievements of Allaudin Khilji and Tughlaq Nama which is a valuable source of the history of Ghiasuddin Tughlaq.

- **Ziauddin Barani** Barani is the greatest of all the contemporary historians of early medieval India. His work, *Tarikh-i-Firoze Shahi* preserves the history of the Delhi Sultanate for one whole Century (from the 1250s-1350s). His other work *Fatawa-i-Jahandari* is contemporary to the earlier work and it deals with subjects like functions and powers of the state, religion, politics, etc.

Persian Literature during Mughal Rule

- The salient feature of the period is the autobiographical accounts written by emperors themselves. *Tuzuk-i Baburi* (in Turkish) by Babur and *Tuzuk-i Jahangiri* (in Persian) by Jahangir are important works in this genre.

Gulbadan Begam was the daughter of Babur was also a great scholar and she wrote *Hamayun Nama* on the specific request of Akbar.

- Abul Fazl was able to produce a history of Akbar's reign through *Ain-i-Akbari*. It is considered an important contribution to Indo-Persian historiography. It features are :

- It describes Akbar's military expeditions against the Rajputs.
- It provides exhaustive details of the events and policies introduced by Akbar till the year 1602.
- It tells us about the economic details, but these details do not tell anything about the life and conditions of the masses, the peasantry or the working class.
- It contains statistical details which are valuable sources for the study of economic history with no parallel with any historical accounts prior to it or till the 18th century.
- It is a unique compilation of the system of administration and control through the departments of government. It also contains an account of the religious and philosophical systems of the Hindus.

- Apart from above mentioned historical texts the foreign travelers provide sources of information on Medieval Indian History. These are as follows:
 - Ibn Battuta travelled India during the 14th Century during the time of Muhammad Bin Tughlaq. His book called Rihla written in Arabic provides extremely rich and interesting details about the social and cultural life in the Sub-continent in the 14th Century.
 - Abdur Razzak was a Persian ambassador and stayed in the Deccan region for about two years. He came to India (Vijaynagar) in the 15th Century. His account is one of the primary sources of the history of the Vijaynagar Kingdom of the Medieval Period.

Thus, it is evident that the Persian literary sources during medieval India reflect the spirit of age.

13. Since the decade of the 1920s, the national movement acquired various ideological strands and thereby expanded its social base. Discuss. (Answer in 250 words)

15

Ans. With the formation of Congress in 1885, Indian National Movement took an organised shape. It underwent several ideological changes and encompassed several classes over the course. The third decade of the twentieth century is a watershed in modern Indian history in more ways than one. While, on the one hand, this period marked the entry of Indian masses into the national movement, on the other hand, this period saw the crystallisation of the main political currents on the national scene.

Indian National Movement after 1920's

- **Gandhian Phase** After passing through the moderates and extremists phase the divergence between Indian and British interests became clearly apparent. It led to the beginning of the Gandhian phase in the Indian National Movement. The methods like satyagraha and boycott were adopted and the goals were changed to swaraj from more representation of Indians. The Gandhian phase was characterised by non-violent civil disobedience and non-cooperation.
- **Rise of Socialism** After the 1920s, socialism was deeply embedded in the National Movement. It was clearly reflected in the resolution of Congress, activism of prominent leaders. Movements dominated by younger leaders such as J.L. Nehru, S.C. Bose, Bhagat Singh actively raised issues of workers and peasant welfare. The issues of farmers and rural areas took the centre stage.
- **Phase of Mass Involvement** For the first time in the history of India's freedom movement, the working class, the peasants and the middle classes participated in a large scale in the National Movement.

Industrial strikes, citywide hartals, huge demonstrations and rallies of sections of the working class became common features of political life.

- **Communism** The Communist Party of India (CPI) was formed in 1920 in Tashkent. Workers' and peasants' movements were organised all over the country. All these communist groups and workers' and peasants' parties remained an integral part of the national movement and worked along with the Congress. Thus, communism took roots in the National Movement.
- **Revolutionary Ideology** The Hindustan Republican Association was founded in October 1924 in Kanpur by Ramprasad Bismil, Jogesh Chandra Chatterjee and Sachin Sanyal.

It sought to organise an armed revolution to overthrow the colonial government.

- **Hindutva Ideology** The term Hindutva was popularised by Hindu nationalist Vinayak Damodar Savarkar in 1923. It was championed by right-wing Hindu nationalist volunteer organisation Rashtriya Swayamsevak Sangh (RSS). The influence of the Hindu renaissance movements was such that there was a confluence of ideas of the Hindu cultural nationalism with the ideas of Indian nationalism. The Hindu renaissance movements held considerable influence over the revolutionary movements against the British rule and formed the philosophical basis for the struggles and political movements that originated in the first decade of the twentieth century.

Thus, it can be concluded that the National Movement truly created the space for the benefits for the whole section of the society and followed the path beneficial to every section. It is climaxed in the golden vision of our constitution and its objectives of justice, equality and fraternity.

14. The interlinking of rivers can provide viable solutions to the multi-dimensional inter-related problems of droughts, floods and interrupted navigation. Critically examine. (Answer in 250 words)

15

Ans. The inter-linking of rivers is also often referred to as inter-basin transfers. Essentially, the motive behind interlinking of rivers is that the disparities in the different river basins of India could be balanced by water transfers from the surplus basins to the deficit basins.

Advantages of Interlinking of Rivers

- **Solve the Problem of Floods and Droughts** Interlinking of rivers benefits agriculture as farmers are no longer dependent on monsoon due to availability of sufficient quantity of irrigation waters. The problems of floods and droughts can be tackled nationwide.

The water from the river which causes floods can be transferred to the water deficient regions. For example, the Ken Betwa link project once constructed would help in supplying water to certain drought-prone areas.

- **Solve the Problems of Drinking Water** As interlinking of rivers involve transferring surplus amounts of water to the water deficient areas, problems of drinking water can be easily resolved. The water deficient regions can be supplied drinking water with greater equity and without interruptions.
- **Inland Navigation** The canals are not large enough to facilitate long-distance inland navigation at present, but such examples can be seen elsewhere in the world. River interlinking can lead to improvement in navigability of water bodies. E.g. inland navigation over the river Narmada from the Gulf of Cambay, to Gujarat to Madhya Pradesh can help in cheaper transportation.

If Narmada is linked with Tapi river then it can further boost the inland transportation between Gujarat, Madhya Pradesh and Maharashtra.

Challenges in Interlinking of Rivers

- **Financial Constraints** Implementation of the project needs huge financial capital. River interlinking is an expensive business which includes building the link canals and monitoring and maintenance infrastructure.
- **Displacement and Disruption** The project's implementation would lead to large scale displacement of people and wildlife. It would lead to disruption in normal lives of the citizen.
- **Loss to Environment and Biodiversity** There is significant loss of biodiversity and environmental resources due to river interlinking. A scientific assessment of the project and its impact on the environment is necessary. For example the Ken-Betwa river project passes through Pench Tiger Reserve and the project may harm the fragile ecosystem.

The National River Linking Project (NRLP)

- NRLP was designed to ease water shortages in Western and Southern India, while mitigating the impacts of recurrent floods in the Eastern parts of the Ganga basin. It has two components:

(i) **Himalayan Rivers Development**

Component The Himalayan component envisages construction of storage reservoirs on the main Ganga and Brahmaputra Rivers and their principal tributaries in India and Nepal so as to conserve monsoon flows for irrigation and hydro-power generation, besides flood control. In addition, the Brahmaputra-Ganga Link will augment dry-weather flow of the Ganga. Surplus flows that will become available on account of

interlinking of the Ganga and the Yamuna are proposed to be transferred to the drought prone areas of Haryana, Rajasthan and Gujarat.

- (ii) **Peninsular Rivers Development Component** It includes 16 links that propose to connect the rivers of South India. It envisages linking the Mahanadi and Godavari to feed the Krishna, Pennar, Cauvery and Vaigai rivers. This linkage will require several large dams and major canals to be constructed. Besides this, the Ken River will also be linked to the Betwa, Parbati, Kalisindh, and Chambal rivers.

Thus, it can be concluded that the water transfer helps in the irrigation of drought prone areas and reduces the vulnerability from floods. Dams with adequate water level in the rivers and canals can provide inland water navigation throughout the year.

15. Account for the huge flooding of million cities in India including the smart ones like Hyderabad and Pune. Suggest lasting remedial measures. (Answer in 250 words)

15

Ans. Floods can be defined as 'the submergence of a usually dry area by a large amount of water that comes from sudden excessive rainfall, an overflowing river or lake, melting snow or an exceptionally high tide'.

There has been an increasing trend of urban flood disasters in India over the past several years whereby major cities in India have been severely affected. The most notable amongst them are Mumbai in 2005, Surat in 2006, Kolkata in 2007, Jamshedpur in 2008, Delhi in 2009 and Guwahati and Delhi in 2010. The most devastating ones were Srinagar in 2014 and Chennai in 2015, Patna and Hyderabad in 2019.

Causes of Urban Flooding

- **Lack of Drainage** Urban flooding occurs due to lack of drainage or choked drainage in an urban area. As there is little open soil that can be used for water retention and seeping of water underground. Nearly all the precipitation is transported through the surface or the sewage system.
- **High Intensity Rainfall** Sudden and high intensity rainfall can cause flash floods in urban areas. Flooding occurs when the city sewage system and draining canals do not have the necessary capacity to drain away the volume of water in the rainfall. Water may even enter the sewage system in one place and then get accumulated somewhere else in the city on the streets.
- **Unplanned Urbanisation** The problem of flooding in urban areas is not only due to overflowing rivers, but the unplanned way in which the cities are coping with urbanisation also plays a large role. Cities have been constructed in an unplanned manner on the natural terrains.

- **Encroachment of Basins** Unregulated construction, buildings constructed without paying any heed to the natural topography and hydro-geomorphology adds to the damage. Constructions often take place in urban areas over natural water bodies or flood plains. This makes urban floods more of a man-made disaster.
- **Destruction of Water Bodies** Lakes can store the excess water and regulate the flow of water. However, pollution of natural urban water bodies and their conversion for development purposes has increased risk of floods. These water bodies usually act as buffer areas against floods and other natural disasters.

Remedial Measures

- **Creation of Sponge Cities** Sponge cities can be constructed that can hold, clean, and drain water in a natural way by using an ecological approach. Rather than funneling rainwater away, a sponge city retains it for its own use, within its own boundaries.
- **Rooftop Vegetation** Rooftop vegetation can be planted for storm water management. It reduces storm water runoff and prevents flooding.
- **Restoration of Floodplains** Natural Floodplains play a significant role in flood protection, water management and nature conservation. Floodplains retain and absorb water, thereby shielding nearby towns from the effects of heavy rainfall and flooding.
- **Wetlands Protection and Rejuvenation** Urban flooding may increase if wetlands are not protected. Wetlands are swampy areas that can protect urban regions from flooding by absorbing excess rainwater and seeping excess water into the ground.
- **Proper Urban Planning** Low-lying areas that are prone to flooding in cities have to be reserved for parks and other low-impact human activities. There should be restriction on encroachments in natural drainage areas; planting drought resistant and flood resistant sturdy trees in vulnerable areas can also help.

Urban floods are going to be a more common phenomenon in the wake of climate change. The National Disaster Management (NDMA) had issued guidelines in 2010 on Urban Flood Management. Effective corrective measures are needed to tackle and overcome the floods and subsequent devastation. Urban Flood management will not just help control recurring floods but also respond to other fault lines, provide for water security, more green spaces, and will make the cities resilient and sustainable.

16. India has immense potential of solar energy though there are regional variations in its developments. Elaborate. (Answer in 250 words) **15**

Ans. India is at the apex of a solar revolution as the government has already set an ambitious target to

achieve 100 GigaWatt (GW) of solar energy production by 2022. The solar energy generation potential in a specific area can be assessed on the basis of factors like availability of land, availability of feasible technology, time period of sunshine, etc.

India's Solar Potential

- **India's Solar Density** The National Institute of Solar Energy (NISE), an apex institute of the Ministry of New and Renewable Energy (MNRE), has estimated the potential of solar power in the country to be around 750 GWp.
- According to the remote sensing observations from Geostationary Meteorological Satellite the high density solar energy pockets have been detected in Western, Central and Southern India including States of Gujarat, Rajasthan, Madhya Pradesh, Karnataka, Tamil Nadu and Chhattisgarh. Mapping of solar energy hotspots by the Indian Space Research Organisation (ISRO) has found that Gujarat receives the highest levels of solar radiation, making it the best place in the country to set up solar power plants. After Kachchh in Gujarat, Hayathnagar (Telangana) receives the second highest amount of solar energy followed by Sriharikota (Andhra Pradesh), Jaisalmer (Rajasthan) and Mahendragiri (Orissa).
- **Geographical Location** India's location between the equator and the tropic of cancer ensures that clear sky days which are free from clouds and fog range between 200 and 300 every year. A few pockets in Gujarat, Rajasthan, Maharashtra, Madhya Pradesh and Tripura witness more than 300 clear sky days.
- **Monthly Variation** The amount of solar energy reaching the Indian landmass increases between March and May with the peak recorded in the Western dry and Central Indian plains. It reduces with the onset of South-West monsoon till August due to cloud cover.

A spike in solar energy is recorded in October across India. But this phase doesn't last long with foggy and cloudy conditions in North India, though South India receives more solar energy.

Regional Variations

- **High to very High Solar Energy** Parts of Western and Central India including Chhattisgarh with promising pockets in Gujarat, Rajasthan, Madhya Pradesh, Karnataka and Tamil Nadu. Karnataka tops the list of states with the highest installed solar power generation capacity in the country.
- **Higher Solar Energy** North-Eastern hill region, Mizoram and parts of Tripura.
- **Lesser Solar Energy** Over Indo-Gangetic plain due to persistent cloud cover, fog and haze during January, February, July, November and December.
- **Low Solar Energy** Western Himalayan range with relatively larger solar energy in the Valley.

The per capita electricity consumption is highest in western India followed by Southern and Northern regions. Most of the identified solar hotspots are also in these regions, and hence solar power generation could reduce transmission losses due to its decentralised and distributed nature.

To realise the potential of solar energy India took the initiative to establish the International Solar Alliance (ISA) at the Paris Climate Convention along with France. The alliance will endorse India in achieving its goal of generating 100 GW of Solar Energy and 175 GW of Renewable Energy by 2022.

17. Examine the status of forest resources of India and its resultant impact on climate change. (Answer in 250 words) **15**

Ans. Forests are one of the most important means of addressing the effects of climate change.

Approximately 2.6 billion tonnes of carbon dioxide, one-third of the CO₂ released from burning fossil fuels, is absorbed by forests every year.

India has set a target of bringing 33 per cent of its geographical area under forest cover. The total forest cover of India in 2019 was 21.67 per cent of the Total Geographical Area (TGA) of the country as against 21.54 per cent (of TGA) in 2017.

Status of India's Forest Resources

- According to the 16th biennial assessment of India's forests by the Forest Survey of India, the Total Forest and Tree cover is 24.56% of the geographical area of the country. It includes Forest cover of 21.67% and the Tree cover is 2.89% of the geographical area of the country.
- As compared to ISFR 2017 the current assessment shows an increase of:
 - 0.65% of forest and tree cover put together, at the national level
 - 0.56% in forest cover of the country
 - 1.29% in tree cover of the country
- In terms of area, Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra. In terms of forest cover as a percentage of their total geographical area, the top five States are Mizoram (85.41 per cent), Arunachal Pradesh (79.63 per cent), Meghalaya (76.33 per cent), Manipur (75.46 per cent) and Nagaland (75.31 per cent).

Forest and Climate Change

- **Carbon Sink** Forests can absorb and store carbon over an extended period of time and they are considered 'carbon sinks'. Forests influence climate change largely by affecting the amount of carbon dioxide in the atmosphere. When there is increase in forest cover, carbon is removed from the atmosphere and retained in stem, leaves and soil.

- **Deforestation and Forest Degradation** It has a significant impact on climate change. Reducing loss of forest cover can have multiplier effects for the ecosystems and people.

- These include cutting greenhouse gas emissions, sequestering carbon, providing essential ecosystems services, and maintaining healthy forests that have the best chance of withstanding climate change.
- Forests can help in reducing the effects of greenhouse gas emissions. Around 25% of global emissions come from the land sector.

The second largest source of greenhouse gas emissions after the energy sector. About half of these (5-10 Giga Ton of equivalent CO₂ annually) comes from deforestation and forest degradation.

- **Check Air Pollution and Soil Erosion** Planting forests along the hill-slopes prevent landslides. In deserts, rows of trees reduce wind erosion by checking wind velocity. Forests attract rainfall too. Thus forests help in maintaining a balance in the ecosystem, which mitigates the harmful effects of climate change.
- **Sustainable Growth** Forests are a stabilising force for the climate. They regulate ecosystems, protect biodiversity, and play an integral part in the carbon cycle. Forests also support livelihoods, and supply goods and services that can drive sustainable growth.

India is a mega-biodiversity country where forests account for about 23% of the geographical area. There is a large dependence of communities on forest resources. It is very important to assess the likely impacts of projected climate change on forests and develop and implement adaptation strategies for protecting the biodiversity and the livelihoods of people dependent upon forests.

18. Is diversity and pluralism in India under threat due to globalisation? Justify your answer. (Answer in 250 words) **15**

Ans. India is a multilingual, multi-religious, and multi-caste country and has been a dominant player in the world system and part of the global economy for ages. Its civilisational past has been shaped and has evolved through a number of events, crises, people, and communities. Globalisation has been defined as the process of rapid integration of countries, it has been accelerated through greater foreign trade and foreign investment.

Impact of Globalisation on India's Diversity

- **Linguistic Diversity** The use of English language as a common language of communication has undermined the use of local dialects, especially in urban centers. Many ancient tribal languages have been wiped out due to the use of common languages for easing and standardising communication. There has been an exponential increase in establishment of English medium schools. English is used from communication between common people as well as for administrative purposes.

- **Caste Diversity** To some extent globalisation has reduced the dominance of caste hegemony. As globalisation has led to increasing focus upon economic growth and development, caste based identities have been reduced. On the other hand it has also led to the strife among various groups to assert their common identities.
- **Local Culture** Increasing consumerism and availability of cheaply produced consumer goods has led to the erosion of local culture in form of local arts and handicrafts. The multinational corporations promote consumer culture, exploitation of workers and markets and influence societal values.
- **Homogenised Lifestyle** There has been an attempt to imitate the Western culture due to globalisation. Urban lifestyles have been homogenised and people do not prefer to identify themselves with their castes, community, religion etc. as compared to their economic class. Traditional dhoti-kurta has been replaced by shirts and trousers. Even in food habits, junk food like pizzas, burgers, pasta are the preferred choices of the younger population.
- **Uniform Values** Globalisation has led to spread and imposition of uniform social and cultural values. Western idea of individualism has been promoted leading to erosion in traditional values and beliefs. The present education system, legal system and administrative systems are based on Western philosophies.

Thus, it can be concluded that there has been both a positive and negative impact of globalisation on social and cultural values in India. There is no denying the fact that globalisation has brought cheers to people's lives by opening new vistas of employment. It has also made inroads in the cultural heritage of this country. Every step of movement towards economic, political and cultural modernisation, taken by the state in India, is responded to by the people with an enhanced sense of self-consciousness and awareness of identity.

19. Customs and traditions suppress reason leading to obscurantism. Do you agree? (Answer in 250 words)

15

Ans. The cultural belief, ritual and tradition is an inherent and intrinsic value in a human being. The customs, traditions and superstition lead to obscurantism and the obscurantism is the practice or policy of deliberately making something difficult to understand, especially in order to stop people from knowing ideas, facts, etc of science or other subjects allows the growth of ignorance.

Custom, Traditions and Science

- In the recent past, the claims made by people such as the existence of the Internet in the times of the Mahabharata, plastic surgery of Lord Ganesha and

the denial of Darwin's theory of evolution makes mockery of India's glorious past which promoted the idea of scientific temper through various customs and traditions.

- The cultivation of scientific temper involves asking questions and demanding empirical evidence. It has no place for blind faith.
- Ancient India was known for rich scientific contributions right from the use of zero, precise calculation of eclipses, concept of atom, to Shushruta Samhita involving complex surgery and Charak Samhita explicitly describing diseases, their causes and modes of treatment.

India has Achieved Marvels in Science and Technology in Past

- Sending Mars Orbiter Mission on the red planet is not based on superstition, rather the tireless efforts of our great scientists and their rational and scientific outlook.
- Eradicating diseases like polio, smallpox and reducing mortality rate or curing many deadly diseases are possible because of scientific research and growth.
- Indoctrination against the scientific temper begins at the very early stage of life. It starts in our families and communities where young minds are aggressively discouraged from questioning authority and asking questions.

E.g. an upper caste child may be forced to follow customs, which among others include practising and subscribing to the age-old caste system.

The same methodology is used to impose fixed gender, sexual and religious identities. As a result, casteism, majoritarianism and misogynist behaviour breeds in society.

- Traditional customs and beliefs should be practiced for the betterment of the humanity. It is only possible when traditional practices are seen from the perspective of Human reason and rationality. Traditions and customs should not be practiced to prevent the welfare and wellbeing of Human race.

The founders of the Constitution valued scientific temper and human reason. Hence the words scientific temper and the spirit of inquiry and reform finds place in the Constitution, along with liberty, equality, fraternity and secularism.

There is a need to revolutionise education, providing scientific training in schools so that people could apply their scientific mind and take rational decisions to make their life better.

20. How have digital initiatives in India contributed to the functioning of the education system in the country? Elaborate your answer. (Answer in 250 words)

15

Ans. Education system over a period of time has gone through many changes. The latest has been the role of Information and Communication Technology. The government has started various initiatives to promote digital education in India. E.g. SWAYAM, SWAYAM Prabha, SARANSH etc.

Contribution of Digital Initiative to the Education

- **SWAYAM** The 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) is an integrated platform for offering online courses and covering school to postgraduate level. It will contribute towards enhancing higher education prospects in India. It has promoted access, equity and quality.
- **SWAYAM Prabha** SWAYAM Prabha is an initiative to provide high quality educational channels through DTH (Direct to Home) across the length and breadth of the country on 24X7 basis. These channels provide Curriculum-based course contents at post-graduate and under-graduate level. It has helped in covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc.
- **National Digital Library (NDL)** It is a project to develop a framework of virtual repository of learning resources with a single-window search facility. It has enabled people to learn and prepare from best practices from all over the world and to facilitate researchers to perform inter-linked exploration from multiple sources.
- **E-Yantra** It is a project for enabling effective education across engineering colleges in India on embedded systems and Robotics. As India seeks to contribute to the Fourth industrial revolution, based upon automation of traditional manufacturing processes, robotics and embedded systems will greatly enhance India's capabilities in the field of automation.

- **SARANSH** It is a digital learning initiative by CBSE. It is a tool for comprehensive self-review and analysis for CBSE affiliated schools and parents. It seeks to enhance the quality of secondary education in the country by improving communication between schools and parents.
- **ePathshala** It is developed by NCERT for showcasing and disseminating all educational e-resources through website and mobile app. It also seeks to improve the quality of school learning by disseminating new educational techniques and promoting new ideas among the teaching community.

Challenges of Digital Education

- **Resource and Internet Connectivity** One of the main challenges for digital education in India is poor internet connectivity in rural areas and some part of urban areas.
- **Shortage of Trained Teachers** A major obstacle in the use of digital education in rural areas is the lack of trained teachers to use digital technologies.
- **Language and Content** Different languages are spoken all across the country. Digitising the content in regional languages sometimes becomes a difficult task for the agencies.
- **Maintenance and Upgradation** In rural areas due to budgetary constraints the maintenance and upgradation of digital equipment is one of the major challenges.

The education sector is witnessing a paradigm shift from a one-size-fits-all factory approach, to a much more agile and tailored form of learning. Innovations like e-books, e-content, e-learning technologies have introduced a plethora of developments in the existing teaching methodologies.

Development of education infrastructure is required for the development of digital education across the country.